

MULTIPURPOSE INDUSTRIAL ENERGY-EFFICIENT AERATION AND OXIDATION PLANT OF ROTOR TYPE

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Presently, various heat and mass transfer equipment are used to intensify chemical and technological processes, in particular, rotor-pulsating apparatuses (RPA) are widely used. Given that the impact on the processed medium in these devices is due to hydroacoustic and hydromechanical factors, the main phase should be a liquid. Consequently, these processes, which are realized in the RPA, are heterogeneous and are divided into groups: liquid-liquid, liquid-solid, liquid-gas.

The aim of the work was to develop an industrial energy-efficient aeration and oxidation plant of rotor type, designed to intensify the air's oxygen absorption.

The mass transfer of oxygen from the gas phase to liquid plays an important role in the various heat technologies. It is used to purify drinking water from iron, manganese, hydrogen sulfide, carbon dioxide. Biological treatment of wastewater also involves the process of aeration.

Cultivation of aerobic microorganisms, aeration of fish ponds, oxidation of hydrocarbons, alcohols, aldehydes - all this is associated with the absorption of oxygen in liquid media.

Conclusions

The multi-purpose energy-efficient aeration and oxidation plant with a productivity of 20-40 m³ / h has been developed, which allows to increase the rate of dissolution of oxygen in comparison with existing aeration devices in 3-4 times, reduce energy costs by 30-35%, and cost 20-25%.